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Barriers of using Internet Resources in Higher Learning Institutions: A Case of Mzumbe University in Morogoro Region in Tanzania

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Abstract
This study examines perceived barriers of using internet resources in higher learning institutions in Tanzania with a particular reference to Mzumbe University. Both qualitative and quantitative data were collected by using questionnaires and in-depth interviews. A total of 50 respondents were randomly selected from 5 Faculties, 2 Institutes and 3 Directories of the University using both simple random and purposive sampling procedures. Data were analysed both descriptively and statistically and were presented in tables and percentages. The Technology Acceptance Model (TAM) which is based on the Theory of Reasoned Action (TRA) guided data analysis in this study.The study found several barriers of using internet resources for teaching and learning which include: lack of skills on how to search internet resources, lack of consistent technical support, computer viruses which limit access to e-resources, inadequate PCs, lack of training on how to access and use e-resources, and poor internet connectivity.Authors recommend the management of Mzumbe University to address the said barriers to enable easy access of internet resources by its academic staff and students so as to improve their performance in their academic endeavours.
Keywords: Internet resources and integration of ICT in teaching and learning

1.0 Introduction

Usage of internet resources in lessons preparations and learning is a necessity in improving quality of teaching in higher learning institutions in Tanzania. These resources are useful to the readers as they facilitate both teaching and learning in a more flexible ways. However, the usage of the said resources by lecturers and students in higher learning institutions in Tanzania and in particular at Mzumbe University is low (Adika, 2003). This is due to several barriers that affect usage of the said resources such as: slowness of the internet, lack of skills on how to search internet resources, lack of consistent technical support, computer viruses which limit access to e-resources, inadequate PCs and lack of training on how to use e-resources.

This study therefore, examines the said barriers to enable readers to easily access internet resources in facilitating their teaching and learning endeavours. The paper is organized into six sections including this introduction. Section two is literature review, section three is the methodology used in the study. Section four is the presentation of findings; section five is conclusion, while section six is the recommendations.

2.0 Literature review

Most of the literature reviewed on the usage of internet resources for teaching and learning indicates user centered barriers to internet resources. This include: lack of skills on how to use information resources, lack of appropriate reward for electronic scholarly communication, lack of consistent technical support and lack of time to be spent on searching for information (Tompsett and Alsop, 1997; Macias-Chapula, 1995; Ray and Day, 1998; Borgman, 1996). They further noted that the use of e-resources and retrieval systems require a basic knowledge of computing and searching skills. Bingimlas (2009) identified several major barriers to successful integration of ICT into education that include; lack of confidence, lack of competence and lack of access to resources. Butler and Sellbom (2002) add that barriers of using electronic resources in education results from unreliability of the sources, learning how to use the technology, difficulty in using the technology and inadequate institutional support. Wee and Bakar (2006) study identified the following obstacles: lack of equipment, outdated equipment, poorly maintained equipment, poor network infrastructure, insufficient provision of training, poor technical support and scarcity of time.

A number of researches have been undertaken to explore why academic staff do not appear to be integrating new technologies into their teaching. According to Sue and McCormack, (1996) some surveys of academic staff in UK higher education highlight a perceived lack of various resources, such as: time, equipment or funds, as barriers to the adoption of new approaches. Hammond *et al.* (1992) also noted in UK that issues such as lack of time, financial constraints, lack of training and insufficient information on software as the most significant barriers to academic staff using information technology in their teaching. The picture emerging from

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the above studies and others by Hansen and Perry (1999) and Herling (1994) suggests a common line of lower than expected adoption of new practices because of barriers such as insufficient time, inadequate facilities, too few incentives and lack of support.

Cuban (2001) who conducted a study to examine computer use by university lecturers pointed out to barriers originating from innovative use of technology: lecturers do not have time to find and evaluate software, computer training was seldom offered at convenient times, most training was too generic and was rarely specific to the needs of lecturers. The significance of contextual factors is also highlighted, particularly the culture of the university, the structure of the university, and the location of computers. The age and level of experience of lecturers were also found to be factors inhibiting computer use. This is also supported by Dong (2003) whose study revealed that respondents with higher degrees and lower age spent more time on the internet than their old counterparts.

Poda (2003: 22) who conducted a study on internet use by the faculty and students at the University of Ouagaddougou, Burkina Faso, concluded that internet use was primarily influenced by seven factors, namely: "personal satisfaction, information accessibility, enhanced learning, cost effectiveness, technology infrastructure, equipment, skill and financial challenges. The author's findings are supported by Pelgrum (2001) who found some "obstacles to the integration of ICT in education, these include: insufficient training of the university staff about ICT, insufficient number of computers, slowness of ICT systems and low level of openness to changes".

The barriers identified in the studies carried out in the USA and the UK can be grouped into two levels: those related to the individual (lecturer-level barriers) and those related to the institution (university-level barriers). Although this may be a useful distinction to make at the beginning of addressing the subject, the literature points to a complex interrelationship between university -level and teacher-level barriers, and between the barriers within those levels. Butler &Sellbom (2002) have indicated that unreliability of internet as a teaching resource was the most commonly cited significant problem followed by slow internet access and out of date software as barriers to adoption of the technology in teaching in the USA.

Other barriers include: lack of knowledge about the usage of internet resources in teaching, absence of both formal training and self-directed exploration (Fabry& Higgs, 1997; Erdem (2008) and for preparing ICT resources for lessons (Preston *et al., 2000*), and lack of self-confidence in using ICT (Pelgrum 2001). Snoeyink&Ertmer (2001) noted that a negative experience with ICT in the past is one of the barriers. While Van Fossen (2001) suggested that lack of knowledge necessary to enable lecturers to resolve technical problems when they occur appear to be a major barrier to most of the lecturers. Yuen & Ma (2002) indicated that most of the interviewed lecturers had perception that technology does not enhance learning. Snoeyink&Ertmer (2001) also mentioned lack of motivation to change long-standing pedagogical practices, while Cox *et al. (*1999) noted that perception of computers as complicated and difficult to use was a barrier to effective use of internet resources.

Pelgrum (2001), Guha (2000) and Cox *et al.* (1999) indicated that lack of ICT equipment and the cost of acquiring, using and maintaining ICT resources acted as barriers on the side of the university. Preston *et al*., (2000) and Veen, (1993) also found the following barriers: obsolescence of software, hardware, lack of technical support, lack of training differentiated according to lecturers' existing ICT skill levels and lack of training focusing on integrating technology in the classroom rather than simply teaching basic skills.These barriers need to be addressed to enable smooth use of online resources by readers for their own benefits and that of the University.

This study therefore, examines the perceived barriers of using internet resource in lesson preparation for teaching at Mzumbe University in Morogoro Region in Tanzania.

3.0 Conceptual framework

This study used the Technology Acceptance Model (TAM) developed by Davis (1989), based on the Theory of Reasoned Action (TRA) widely used in psychological researches. The TRA posits that individual behaviour is driven by behavioural intention where behavioural intention is a function of an individual's attitude towardsthe behaviour and subjective norms surrounding the performance of the behaviour. In other words, it states that ones behaviour and the intent to behave is a function of one's attitude towards the behaviour and their perceptions about the behaviour. Therefore, behaviour is the function of both attitudes and beliefs.

The theoretical foundation of this conceptual model comes from combining earlier researches in technology acceptance (Davis, 1989), Davis, Bagozzi and Warshaw 1989) which consists of five factors as shown below:

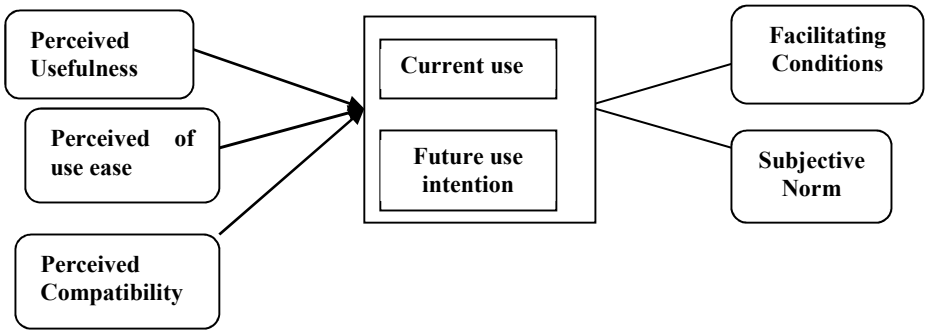
- *Facilitating conditions*, this is an objective factor in the environment in which observers agree that it makes an act easy to accomplish.
- *Perceived usefulness,* this is defined as the degree to which a person believes that using a particular system would enhance his or her job performance.
- *Perceived ease of use,* it is defined as "the degree to which a person believes that using a particular

system would be free of effort.

- *Perceived compatibility,* thisis "the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters.
- *Subjective norm*, this is a perception that people important to subjects influence the subjects intentions and actions, for instance a teacher may influence a student. It also refers to individual's perception of social pressure to perform or not to perform the behaviour (Thompson, Higgins and Howell, 1991; Moore and Benbasat, 1991; Fishbein, and Ajzen, (1975).

The assumptions are that all factors are positively associated with *Current use* and *Future use intentions* as depicted in Figure 1 below:

Figure 1: The Conceptual Model: A technology usage model for e-learning)



Source: adopted fromDavis (1989).

The assumption of the model is that five factors influence the use and use intention of e-learning tool. TAM proposes that perceived ease of use and perceived usefulness of technology are predictors of user attitude towards using the technology, subsequent behavioural intentions and actual usage. Perceived ease of use was also considered to influence perceived usefulness of technology.

- **Methodology**

This study used a qualitative survey methodology which is characterized by combination of qualitative and quantitative methods of data collection.

4.1 Study Area

This study was conducted at Mzumbe University Main Campus which is located in Mvomero District in Morogoro Region. The University has got 5 faculties, 2 Institutes and 3 three Directorates from which respondents were drawn.

4.2 Sample and Sampling Procedure

The study composed of 50 respondents who were selected by using simple random sampling for the case of academic staff and students, and purposive sampling procedure for the case of members of management.

4.3 Data Collection Methods

Data was collected by using questionnaires and in-depth interviews. Questionnaires were distributed to lecturers, librarians and students, while interview questions were administered to the ICT personnel, educational professionals and one person from the Ministry of Education and Vocational Training (MOEVT).

4.4 Data Analysis Procedure

Quantitative data drawn from questionnaires were analysed by using (SPSS), while qualitative data drawn from in-depth interviews were analysed by using content analysis procedure.

- **Findings and Discussion**

In this section, perceived barriers of using internet resources faced by lecturers and students were presented in Table One below:

Table 1: Barriers of accessing internet resources
Number of all respondents=50

No	Category of responses	Frequency	Percent (%)
1	Computer viruses limit access to e-resources	37	74
2	Computer software not up to date	33	66
3	Bad experience in using e-resources	33	66
4	Problem of internet connectivity	30	60
5	Lack of adequate training on how to use e-resources	28	56
6	Access to PCs is limited	28	56
7	Slowness of the internet	26	52
8	Lack of consistent technical support	24	48
9	Ease of using print resources compared to e-resources	24	48

Source: Field data 2009

5.1 Computer viruses limit access to e-resources
According to Herling (1994:14) "computer viruses are executable programmes capable of self replicating and self modifying in the system with the motive of disrupting computer operation". This observation is verified with the results summarised in Table 1 which revealed that 15 (65%) of respondents strongly agreed that viruses limit the use of internet in lesson preparation. Results also revealed that viruses discouraged students from using electronic devices and other resources while studying. These responses reveal beyond doubt that computer viruses hamper internet resources use in higher learning institutions. Through interviews and observations it was revealed that most Mzumbe University use open sources or free antivirus in solving this problem. ICT personnel who were interviewed reported that they were always given a meagre budget which cannot enable them to acquire commercial antivirus software which are expensive. This statement is in line with the current study's conceptual framework which clarifies the fact that the success of information technology depends on the amount of funding the institution commits in the maintenance of software and hardware and the purchase of new equipment.

5.2 Some computer software are not up to date
As shown in Table 33 (66%) of respondents agreed that software in some of the computers were out of date. In an in-depth interview with one of the librarians with regards to statement that computer software was not up to date, it was revealed that: "the library was using very old antivirus software which expired two years ago. The respondent continued to state that some of the computers were old and therefore, making downloading of internet resources to be very slow, thus discouraging library patrons from using them." Some of these grievances were also noted in one of the internet statistic sheets which patrons register themselves when searching internet resources. This qualitative information was supported by one of the DICT staff who commented that:

> *"License fees for computer software are very expensive; this forces institutions to opt for the open sources which are free software sources. These free sources last for some few days and they are not reliable at all."*

This is one of the barriers which affect staff and students at Mzumbe University in using internet resources for teaching and studying. These findings are in agreement with those of Sellbom (2002) and Hammond *et al* (1992), who observed that obsolete software was a barrier in internet resource usage. This shows the need of acquiring new software which can enhance computer performance and speed of downloading e-resources. However, currently, there are improvements in some areas of the University such as in the Directorate of Library and Technical Services where the University bought 45 new computers for use by readers as explained in the latter section.

5.3 Access to PCs is limited
This has been stated by 28 (56%) of respondents as shown in Table 1. This is mainly due to increase in recruitment of academic staff and students enrolment, which did not match with the acquisition of ICT facilities. Currently the computer student ratio is (1: 17) i.e. one computer is used by 17 students. In general, this portrays the real picture of inadequacy of computers that can affect accessibility of internet resources by lecturers and students. This affects not only efforts by staff in searching internet resources but also communication with their colleagues through the internet. Therefore, management of Mzumbe University should address the said problem by supplying computers to staff to enable them easily access internet resources for the benefits of their users. The problem of shortage of computers has also been revealed by one student who gave the following comments:

"Our university has a large number of students; this is due to increasing student enrolment which does not go hand in hand with the installation of additional ICT facilities. For instance, if you want to access the internet and you do not have a laptop you have to scramble for the few computers in the library and in different computer laboratories".

This is an area which needs to be addressed to improve computer-user ratio that will enable both lecturers and students to integrate the new technology in teaching and learning. However, currently there are some improvements as additional computers (45) have been procured by the University for use by students. This makes the library to have a total of 49 computers including the old ones for use by readers. All the computers have been connected to the internet using the wireless technology. Although the problem of limited PCs has been improved to a greater extent, computers are still not enough compared to the number of students who daily visit the library who reach more than 300. This can be noted as students used to rush to the computers once the library entrance door has been opened e.g. at 8:00 am, to avoid missing the computer to use. This reflects the fact that PCs are not enough due to increasing students' enrolment, which is expected to double by the year 2012.

5.4 Problem of internet connectivity

Internet connectivity is essential for the proper utilisation of electronic resources in lessons preparation. The results of this survey indicate that connectivity to the internet is poor as stated by 30 (60%) of respondents as shown in Table 1. To supplement information extracted through questionnaire, the in-depth interview conducted by researchers revealed that users connected to the internet through wireless network experienced poor connectivity. One respondent commented: "Internet speed is always very low especially from 11.00 am to roughly 3.00 pm. This is the time when most users who are not residing on campus prepare lessons."Those who stay away from the computer centres also complained that:

"The connection was too slow to permit downloading a single research paper which could be used to prepare a lesson or given to students as a reference to read. This poor connectivity problem if not addressed technically will cut off some of us from knowledge in the rest of the world".

Users' arguments in this study are in line with the conceptual framework which discusses technological factors to be a contributing factor to the success or failure of using internet resources in preparing lessons among lecturers in Tanzania. The study by Butler and Sellbom (2002) also indicates unreliability of internet connectivity as the most common barrier.

5. 5 Lack of skills to search internet resources

About (55%) of respondents shown in Table 1 stated that lack of skills for searching internet resources is a barrier that affect the use of online resources. This is true particularly because training about the techniques of searching electronic information was not included in the University main timetable as opposed to other courses. The works of Poda (2003), Van Fossen (2001), Veen (1999) and Cuban (2001) indicated that both lecturers and students in universities lack necessary skills and knowledge, which could enable them to resolve internet related barriers. Cuban (ibid) also emphasized that "computer training among students and lecturers was seldom offered at convenient times. Most of the training was too generic and rarely specific to the needs of these user groups".

In-depth interview with one of the respondent (student) indicated that training on the use of the internet resources is not accorded enough weight as other academic courses. The student commented that "In most cases library user education is regarded as an option to the students who wish to participate. Similarly, because this is not examined at the end of the semester we have a tendency of not participating." This point to the need of including information literacy/user training as part of the compulsory course to enable librarians teach students about the techniques of searching electronic information, thereby improving their learning efforts.

5.6 Bad experience in using e-resources

As shown in Table 1 above, 33 (66%) of respondents indicated that they had bad experience in using internet resources, something which scared them from using the said resources in their academic activities. This is substantiated by one respondent that, 'he is a first year undergraduate student, and that , he has not been introduced/instructed on how to search online resources and when he types the subject he wants to search, he always ends up with irrelevant search results. One of the lecturers argued: 'he finds it difficult to get what he needs on the internet, this discourages him completely, he concludes by saying that probably it is due to his old age. These findings coincide with those of Kubeck*et al.* (1999) who found out that "old people often express more anxiety about their ability to use computers, internet and their related technology." Dickson (2000) as cited by Kubeck*et al.* (1999) also noted that "about 50% of a group of old adults novice computer users failed to complete e-mail tasks assigned to them at a time". Likewise, Dong, (2003) found that "respondents with lower

age spend more time on the internet than their old counterparts".Some of the informal comments received by researchers indicated that both lecturers and students are lacking necessary skills and knowledge in browsing internet resources. This is a challenge to Mzumbe University that points to the need of carrying out information literacy training to both lecturers and students as stated in the preceding section.

5.7 Slowness of the internet

This was stated by 26(52%) of respondents as shown in Table 1. This problem faces readers mostly during peak hours from 10.00 am -5.00 pm, when majority of students use computers for information searches. Another reason which is attributed to the slowness of the internet is the small bandwidth of 256kbs which the University uses. This calls for the need of increasing the bandwidth to improve internet connectivity and downloading speed of electronic resources. The problem of the slowness of the internet is expected to be solved national wide in the near future due to the forthcoming Fibre Optic Technology/project which is being run by the ICT companies in South Africa and Tanzania. When the project is completed it will improve not only the downloading speed of resources due to increase in bandwidth but it will also make internet costs cheaper in Tanzania.

5.8 Lack of consistent technical support

About 24 (48%) of readers stated about the lack of technical support during the time they use computers for information searches. Majority of these students are those who often face technical problems when using library computers and they fail to get their problem immediately solved due to absence ICT skilled staff in the library. Currently the Library depends on ICT skilled from the DICT, who often fails to solve immediate technical problems which students face because of the reason such as being far from the Library, being few and being busy with their Directorate's responsibilities. To get the permanent solution to this problem there is a need for the Library to employ its own ICT skilled staff who can provide immediate assistance to readers who face technical problems when using Library computers.

5.9 Ease of using print resources compared to e-resources

This was stated by 24(48%) of respondents that ease of using print resources is a reason why majority of them do not rely on using e-resources. The low usage of e-resources can also be attributed to by some lectures particularly the old ones who seem not to trust electronic resources whose sources are difficult to trace. This finding concurs with that of Kubeck*et al.*, (1999) who argued that old academic staff mostly prefers print materials due to their ages which made them avoid complication of technology compared to younger staff. However, due to current trend in which publishers are putting most of their resources in electronic formats, libraries have no options but to encourage their readers/readers to get used to reading electronic publications. The above barriers need to be addressed by the University management so as to improve access to electronic resources useful for staff and students.

6.0 Conclusion

The findings presented show the need to address barriers that affect usage of internet resources. This can be done by increasing PCs for use by lecturers and students to enable them to easily access internet resources they need. This indicate the need of involving librarian, in training users in searching internet resources as observed that,"there is a need of trapping librarian's knowledge to enable lecturers and students use internet resources" (Adika's, 2003). Other measures include: increasing internet broadband, acquisition of commercial/licensed anti-virus, purchasing up-to date computer software and mainstreaming of information literacy courses/information search training as a compulsory course to all students and the faculty. This would improve users' speed of searching internet resources for teaching and learning.

In response to the integration of internet resources in teaching and learning the Directorate of Library and Technical Services is embarking on the establishment of Mzumbe University electronic repository which will store some works published by Mzumbe University intellectual community. Examples of the resources to be deposited include theses, dissertations, research reports and journal articles which will be accessed electronically. Such materials are in heavy use by the second year students, third year students (finalist), masters and PhD students. The Directorate anticipates that this might force students to get used to e-resources rather than the current trends where they scramble for few available print copies of the same.

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